What is claimed is:

1. A hepatocyte cell culture comprising liver cells in a bioreactor for use in a liver assist device comprising one or more hepatocytes having increased detoxification enzyme activity,

wherein the hepatocytes are isolated from a liver of a mammalian donor that had been administered at least one induction agent prior to isolation of the hepatocytes,

wherein the induction agent is selected from the group consisting of: beta-naphthoflavone, phenobarbital, 3-methylcholanthrene, ethanol, dexamethasone, arochlor 1254, 2,3,7,8-tetrachlorodibenzo-*p*-dioxin, phenothiazine, chlorpromazine, isosafole, γ-chlordane, allylisopropylacetamide, *trans*-stilbene oxide, kepone, acetone, isoniazid, pyridine, pyrazole, 4-methylpyrazole, pregnenolone 16α-carbonitrile, troleandomycin, clotrimazole, clofibrate, clobuzarit, di(2-ethylhexyl)phthalate, and mono-(2-ethylhexyl)phthalate.

2. The hepatocyte cell culture of claim 1, wherein the induction agent is phenobarbital and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on BROD substrates which is about 20 to about 100-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

3. The hepatocyte cell culture of claim 1, wherein the induction agent is phenobarbital and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on PROD substrates which is about 2 to about 40-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

4. The hepatocyte cell culture of claim 1, wherein the induction agent is phenobarbital and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on 7-ethoxycoumarin substrates which is about 20 to about 50-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

5. The hepatocyte cell culture of claim 1, wherein the induction agent is phenobarbital and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on lidocaine which is about 10 to about 20-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

6. The hepatocyte cell culture of claim 1, wherein the induction agent is phenobarbital and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity

on lidocaine which is about 20 to about 50-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

7. The hepatocyte cell culture of claim 1, wherein the induction agent is beta-naphthoflavone and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on MROD substrates which is about 2 to about 10-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

8. The hepatocyte cell culture of claim 1, wherein the induction agent is beta-naphthoflavone and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on EROD substrates which is about 2 to about 10-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

9. The hepatocyte cell culture of claim 1, wherein the induction agent is 3-methylcholanthrene and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on PROD substrates which is about 2 to about 10-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

10. The hepatocyte cell culture of claim 1, wherein the induction agent is 3-methylcholanthrene and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on MROD substrates which is about 2 to about 10-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

11. The hepatocyte cell culture of claim 1, wherein the induction agent is 3-methylcholanthrene and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on EROD substrates which is about 10 to about 20-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

12. The hepatocyte cell culture of claim 1, wherein the induction agent is 3-methylcholanthrene and wherein the thus induced hepatocytes have a functional cytochrome P450 isozyme activity on diazepam substrates which is about 2 to about 10-fold greater than hepatocytes isolated from a mammalian donor that was not administered an induction agent.

13. A bioreactor comprising, hepatocytes having increased detoxification enzyme activity,

wherein the hepatocytes are isolated from a liver of a mammalian donor that had been administered at least one induction agent prior to isolation of hepatocytes,

wherein the induction agent is selected from the group consisting of: beta-naphthoflavone, phenobarbital, 3-methylcholanthrene, ethanol, dexamethasone, arochlor 1254, 2,3,7,8-tetrachlorodibenzo-*p*-dioxin, phenothiazine, chlorpromazine, isosafole, γ-chlordane, allylisopropylacetamide, *trans*-stilbene oxide, kepone, acetone, isoniazid, pyridine, pyrazole, 4-methylpyrazole, pregnenolone 16α-carbonitrile, troleandomycin, clotrimazole, clofibrate, clobuzarit, di(2-ethylhexyl)phthalate, and mono-(2-ethylhexyl)phthalate,

wherein the bioreactor can be used in a liver assist device.